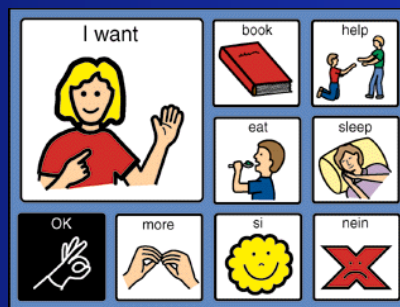
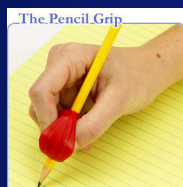
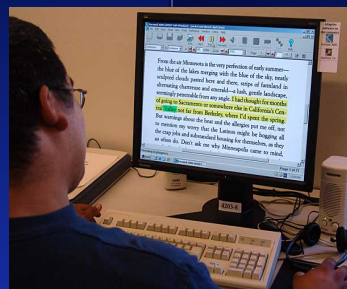


Differentiated Instruction Using Technology Across the Curriculum



Classrooms of the Future and
the Power of Making Things Digital to support of ALL learners:
Where Universal Design for Learning and Assistive Technology meet!

UDL



SETT

This is HARD work we have chosen...



[http://www.youtube.com/watch?
v=w3PhJDxvgJM&playnext=1&list=PLB0686AB8703834FB&feature=results
main](http://www.youtube.com/watch?v=w3PhJDxvgJM&playnext=1&list=PLB0686AB8703834FB&feature=results_main)



http://www.youtube.com/watch?v=e-cL8rwc_gg

Universal Design for Learning

“The concept of UDL is the intersection where all our initiatives – integrated units, multi-sensory teaching, multiple intelligences, differentiated instruction, use of computers in schools, performance-based assessment, and others – come together.” - Donna Palley

What is Universal Design for Learning (UDL)?

- UDL is a **framework** that aims to accommodate a broad spectrum of learners by requiring a range of options for *accessing*, *using* and *engaging* with learning materials.
- UDL principles help educators proactively design **goals, methods, materials and assessment** that address the full range of student variability in today's learning environments.
- These multiple means of *representation*, *expression* and *engagement* reduce barriers for individuals with disabilities but also enhance opportunities for *every* student.

The key is *flexibility* not *uniformity*. And CHOICE.

Origins of Universal Design for Learning

- American's with Disabilities Act (ADA 1990) – access and reasonable accommodations
- North Carolina State University
 - Universal Design and Architecture
 - Accessible features are integrated into the overall design
- Center for Applied Special Technology (CAST)
 - Universal Design for Learning

What does architecture have to do with curriculum?



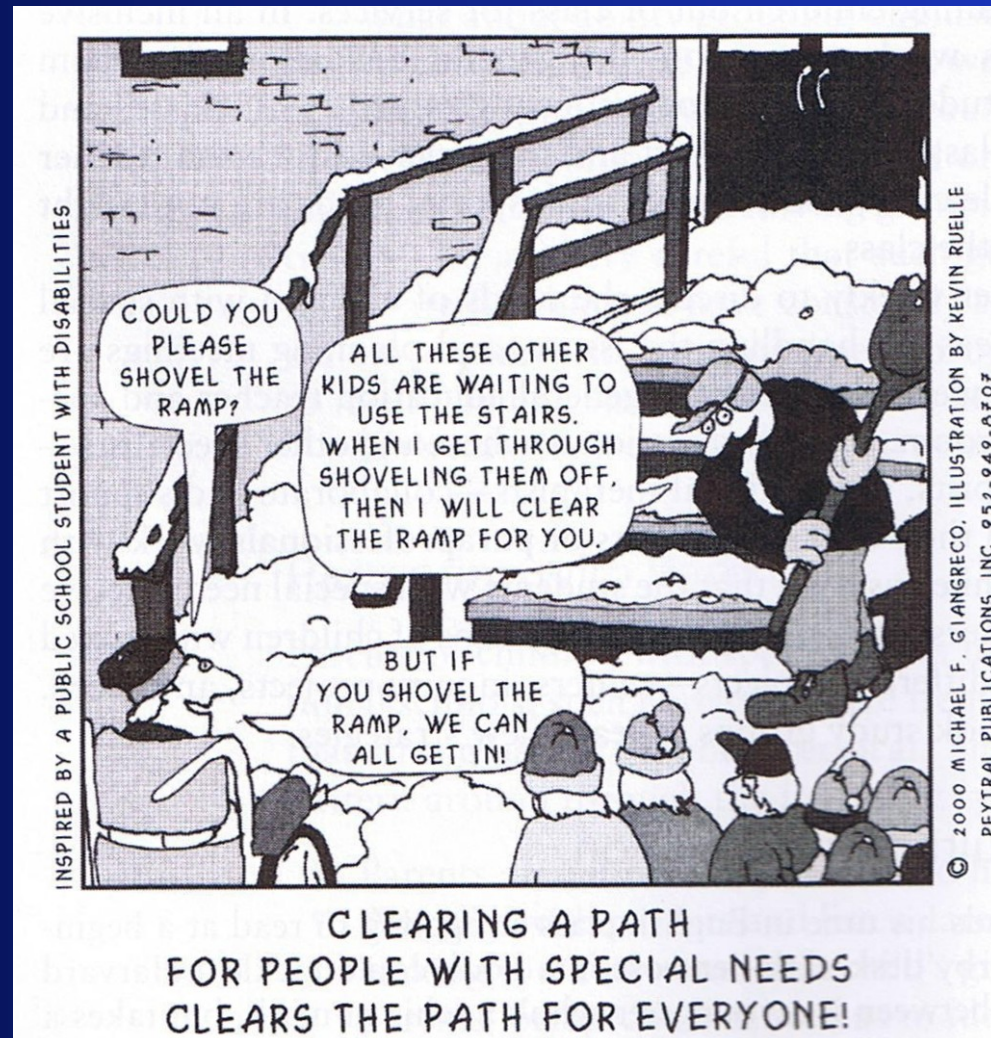
“Consider the needs of the broadest possible range of users from the beginning”

Architect, Ron Mace

Retro-fitted vs. built-in:



Clearing a Path for People with Special needs Clears the Path for Everyone!



What is UDL?



<https://www.youtube.com/watch?v=KhMD2PDa6do>

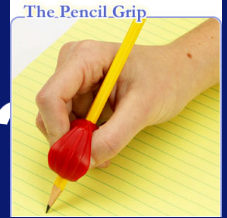
UDL Overview from ISTE InclusiveLN SOOC

My UDL Journey



<https://www.youtube.com/watch?v=500dhPNZfHg>

What about Assistive Technology?



- **Assistive Technology Device:**

“Any item, piece of equipment or product system, whether acquired commercially off the shelf, modified, or customized, that is use to increase, maintain, or improve the functional capabilities of children with disabilities.”

- **Low-tech Pencil grip -> Mid-tech communication device -
>High-tech eyegaze control of computer**

- **Assistive Technology Service:**

“Any service that directly assists a child with a disability in the selection, acquisition or use of an assistive technology device.”

- **Awareness -> Assessment ->Implementation**

Individuals with Disabilities Education Act (IDEA)

Why is Assistive Technology Important? Do we still need it if we implement UDL?



It is the LAW:

Individuals with Disabilities Education Act (IDEA 1997reauth)

- ALL students, regardless of their abilities, must be given the opportunity to become involved with and progress in the general education curriculum. Every student must have *access* to what is being taught. – *IDEA*
- In order to support the inclusion and participation of students with disabilities in regular education classrooms, ALL Individual Education Programs (IEPs) developed for children identified as needing special education services **MUST** indicate that Assistive Technology has been considered.

UDL and Assistive Technology

- AT looks at overcoming the barriers the *Individual* faces in the environment
- UDL looks at making the *learning environment* as flexible and accommodating as possible
- BOTH approaches strive to insure the access, participation and progress of students with disabilities

From Joy Zabala and Skip Stahl

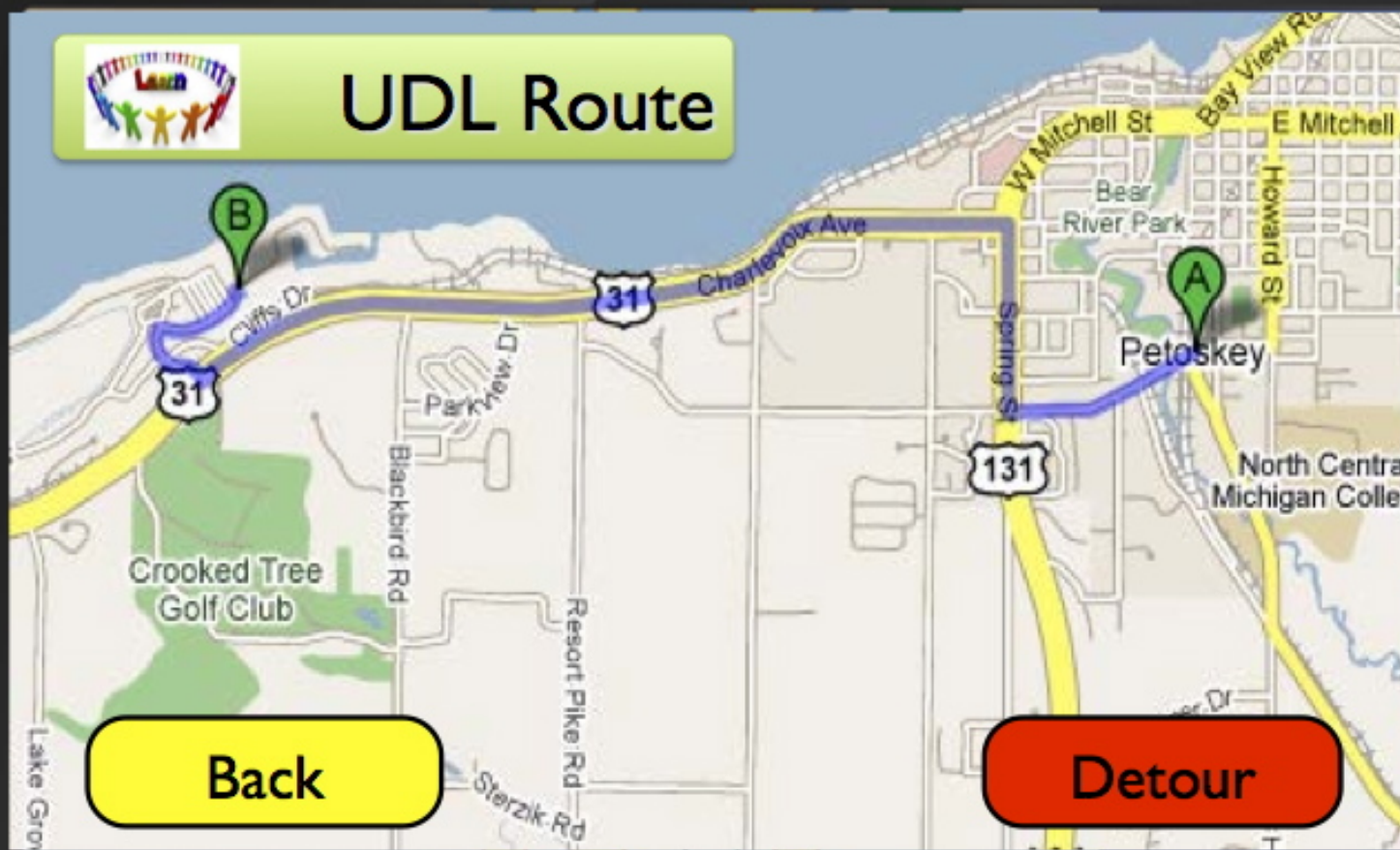


LEARNER PERSONALIZATION





UDL Route



Back

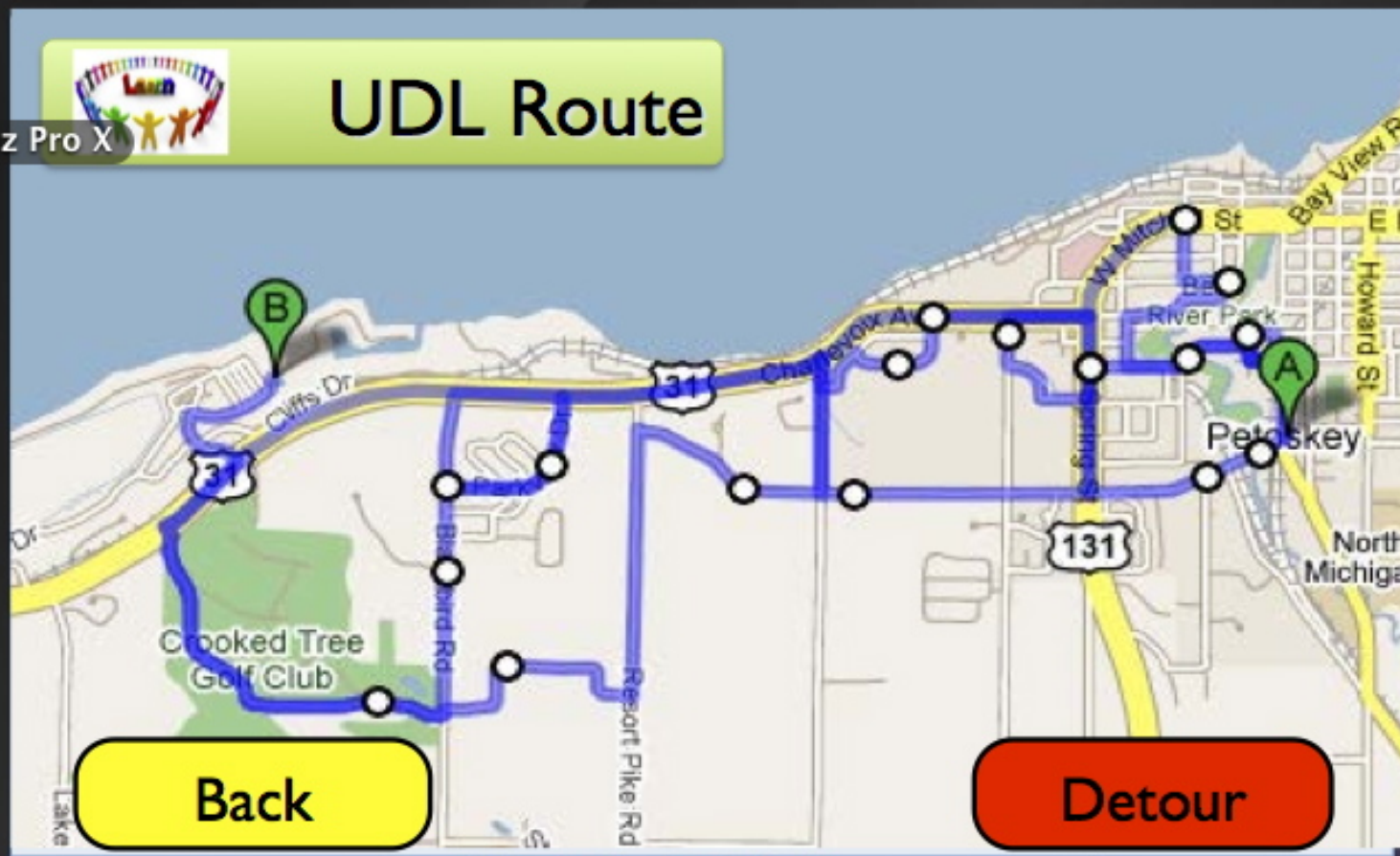
Detour

G.P.S



Snapz Pro X

UDL Route



Back

Detour

G·P·S

Why is UDL Important?



“Just because I can’t speak...doesn’t mean I don’t have anything to say!”

What kind of pencil do you use? The mechanics of reading, writing and communicating should *not* be a barrier to accessing the curriculum.

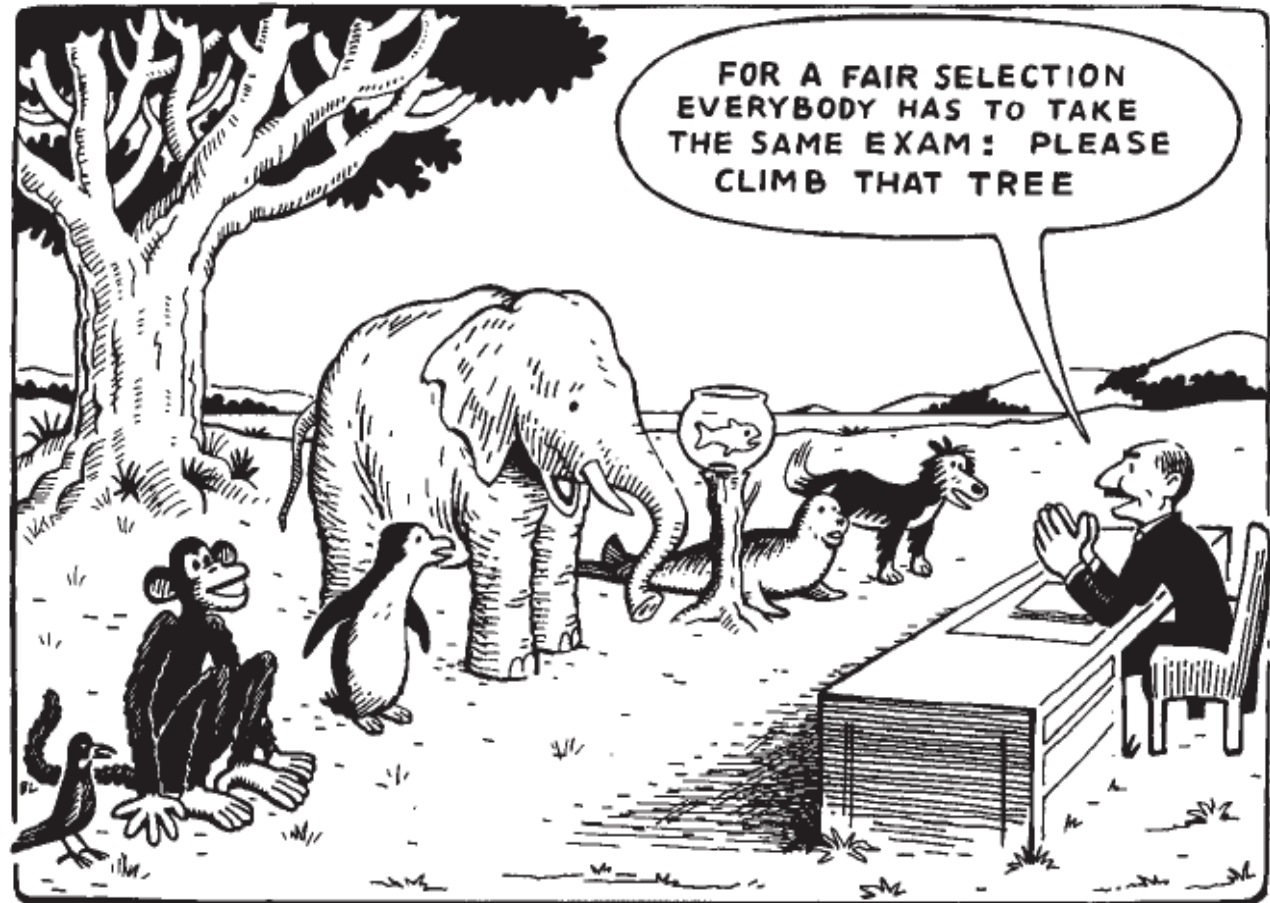


Why is UDL Important?



There is no such thing as an *average* student.

We must honor *all* learning differences and support *all* students in the classroom..



<http://tedxtalks.ted.com/video/The-Myth-of-Average-Todd-Rose-a>

Universally Designed Technologies

- Technologies that are designed and developed to be directly usable (without the need for adaptation or assistive technology)
- Technologies that are designed and developed in ways that can be made usable with assistive technologies
- Technologies that typically include lots of options that can be readily manipulated to meet the needs of a variety of users

Sounds like a great idea! It is also the law...

ALL students must be educated in accordance with grade-level state content standards. If your child takes an alternate assessment, it must be based on standards that are aligned to grade-level content.” - *NCLB*



ALL students, regardless of their abilities, must be given the opportunity to become involved with and progress in the general education curriculum. Every student must have *access* to what is being taught. - *IDEA*

Striving to Reach ALL Learners



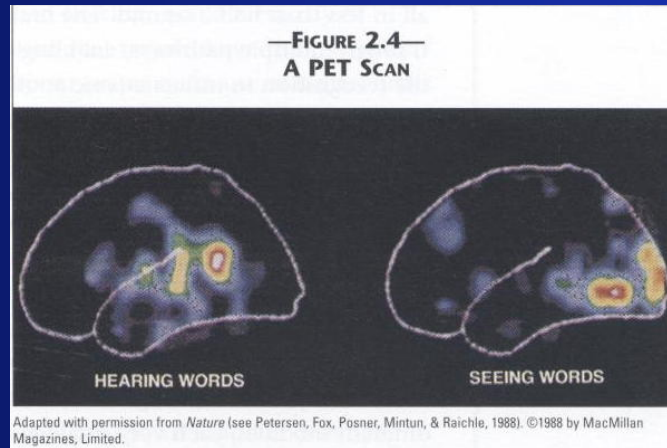
- ☐ Learning disabilities
- ☐ Attention Deficit Disorder
- ☐ Autism Spectrum Disorders
- ☐ Low Vision
- ☐ Hearing Impairment
- ☐ Physical Impairments
- ☐ English Language Learners
- ☐ General Education



Question:

With a Universally designed classroom, could we level the playing field?
Would “disabilities” be less apparent if we assumed a range of learner variability?

Brain Research



- Different sensory inputs are interpreted across different regions of the brain
- Different parts of the brain are activated when completing the same task...when the *goal* is different
- Differently abled individuals use different parts of the brain to process information

Questions:

With a Universally Designed Classroom,
could we level the playing field?

Would “disabilities” be less apparent?

Could some “Assistive Technology” be
Beneficial for general education too?

The Three Principles of UDL

Multiple means of *engagement* (Affective) WHY?

- to tap into learners' interests, offer appropriate challenges, and increase motivation
- New research that this is MORE important than originally given credit for...

Multiple means of *representation* (Recognition) WHAT?

- to give learners various ways of acquiring information and knowledge

Multiple means of *expression* (Strategic) HOW?

- to provide learners alternatives for demonstrating what they know

Helps to reduce barriers for individuals with disabilities but also enhances opportunities for *every* student and honors different learning styles.

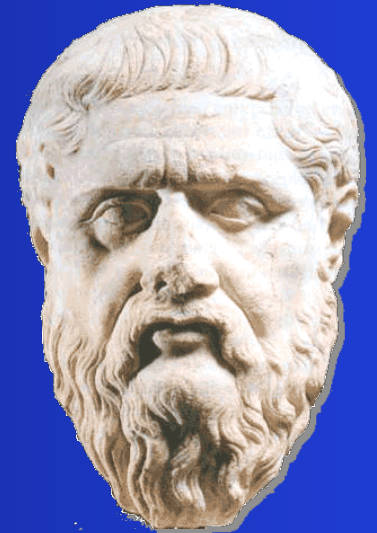
A Criticism of New Technology

An adaptation of:

Plato - circa 387 b.c.

...these inventions will produce forgetfulness in the souls of those who use it. They will not need to exercise their minds...It equips pupils with only a semblance of learning, not true learning. Thanks to these inventions, students will be without benefit of a teacher's instruction...

**This person was referring to
BOOKS...**



What are the Three Principles of UDL?

1. Multiple means of *representation* (Recognition)

- to give learners various ways of acquiring information and knowledge

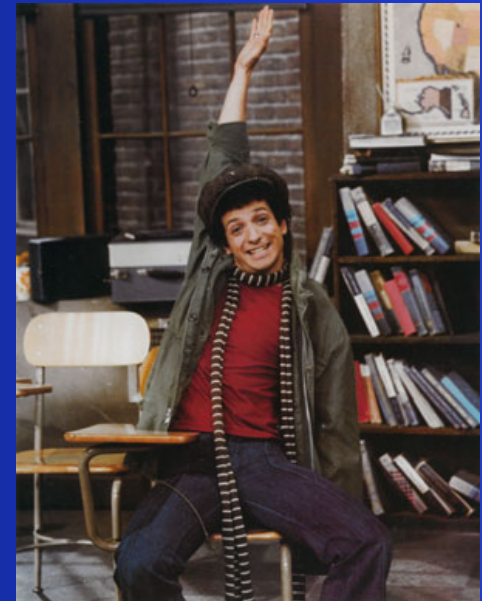
2. Multiple means of *expression* (Strategic)

- to provide learners alternatives for demonstrating what they know

3. Multiple means of *engagement* (Affective)

- to tap into learners' interests, offer appropriate challenges, and increase motivation

1. Support multiple, flexible options for *Engagement*

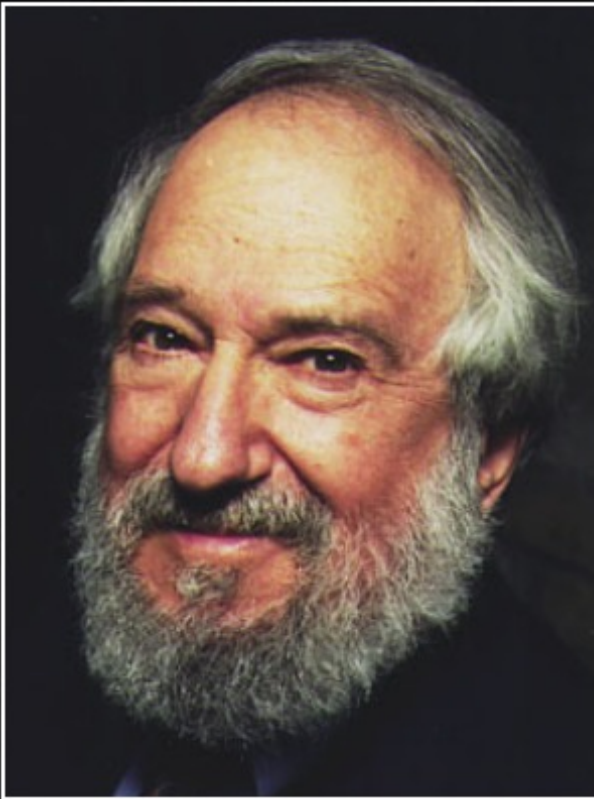


Multiple Means of *Engagement*



<http://www.youtube.com/watch?v=oxYhLDHC1VM>

Multiple Means of *Engagement*



Every maker of video games knows something that the makers of curriculum don't seem to understand. You'll never see a video game being advertised as being easy. Kids who do not like school will tell you it's not because it's too hard. It's because it's--boring

— Seymour Papert —

AZ QUOTES

2. Provide multiple flexible methods of *Representation*



Martin Luther King Speech: Text, audio, video



I have a dream that one day this nation will rise up and live out the true meaning of its creed: "We hold these truths to be self-evident: that all men are created equal."

I have a dream that one day on the red hills of Georgia the sons of former slaves and the sons of former slave owners will be able to sit down together at a table of brotherhood.

I have a dream that one day even the state of Mississippi, a desert state, sweltering with the heat of injustice and oppression, will be transformed into an oasis of freedom and justice.

I have a dream that my four children will one day live in a nation where they will not be judged by the color of their skin but by the content of their character.

http://www.youtube.com/watch?v=9oXtd_XRb3U&feature=related

Multiple Means of *Representation*

Question: Will we have “books” in the future?

- NIMAS: National Instructional Materials Accessibility Standard
- eReaders: Sony, Kindle, Nook, iPad, iPhone, BLIO, etc.
- Online Textbooks developed by publishers
- Electronic Learning Environments: [CAST](#), [University of Oregon](#)
- Open Source online textbooks - allow teachers to customize content
- Online activities, web applications, digital manipulatives
- Wikipedia - up-to-date information
- Netbooks, smartphones , ipads
- Web 2.0 tools: Create, Collaborate, Communicate
- And don’ t forget the almighty APPS!

Joe's Non Netbook



<http://www.youtube.com/watch?v=SkhpmEZWuRQ>

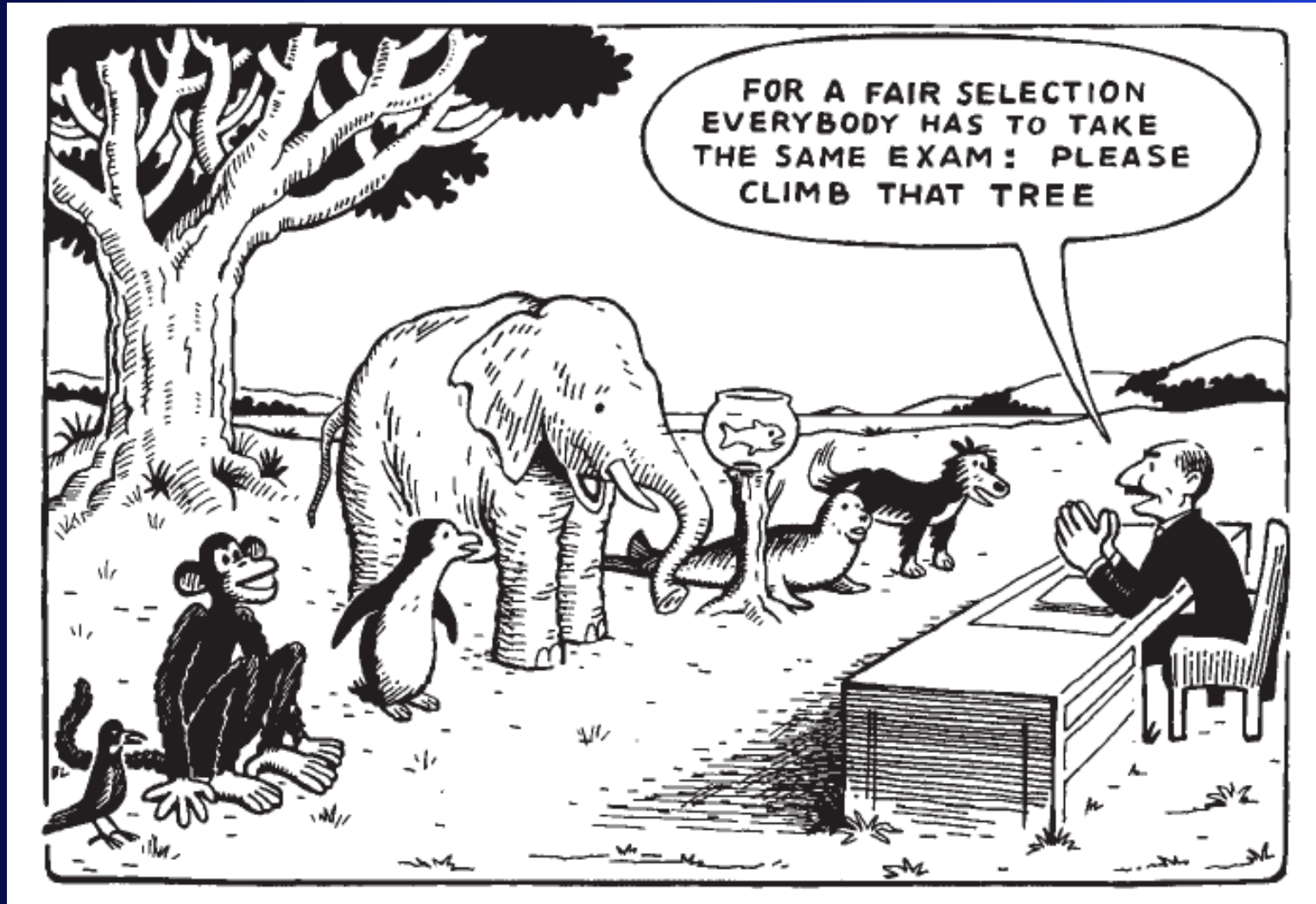


"They're OK, I guess. I just wish I
could change the font."

3. Provide multiple, flexible methods of Expression

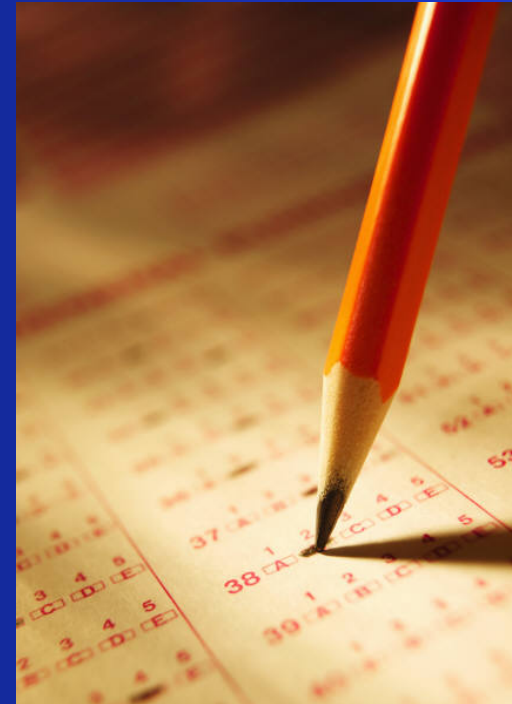


In the Ideal Classroom, this will never happen!



Retro-fitted curriculum vs. curriculum designed to meet multiple student needs:

Get your #2 pencils ready!



- Making things DIGITAL is one part of this initiative to make the general education curriculum inherently accessible to all students...and then there is PARRC...

Why use Assistive Technology Accommodations for Testing?

The *mechanics* of reading, writing, and communicating should not be a barrier to accessing the curriculum, nor should it be a barrier to demonstrating understanding of the curriculum.

“Just because I can’t speak doesn’t mean I don’t have anything to say...”

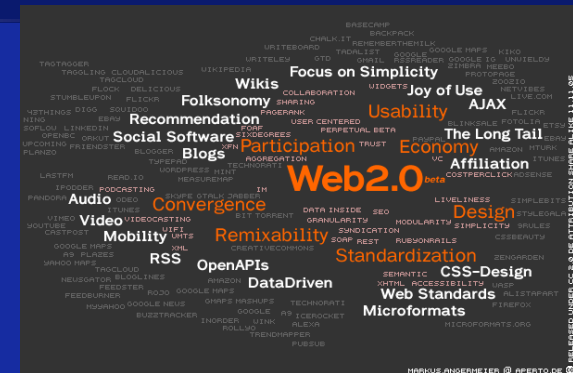


AAC

Multiple Means of *Expression*



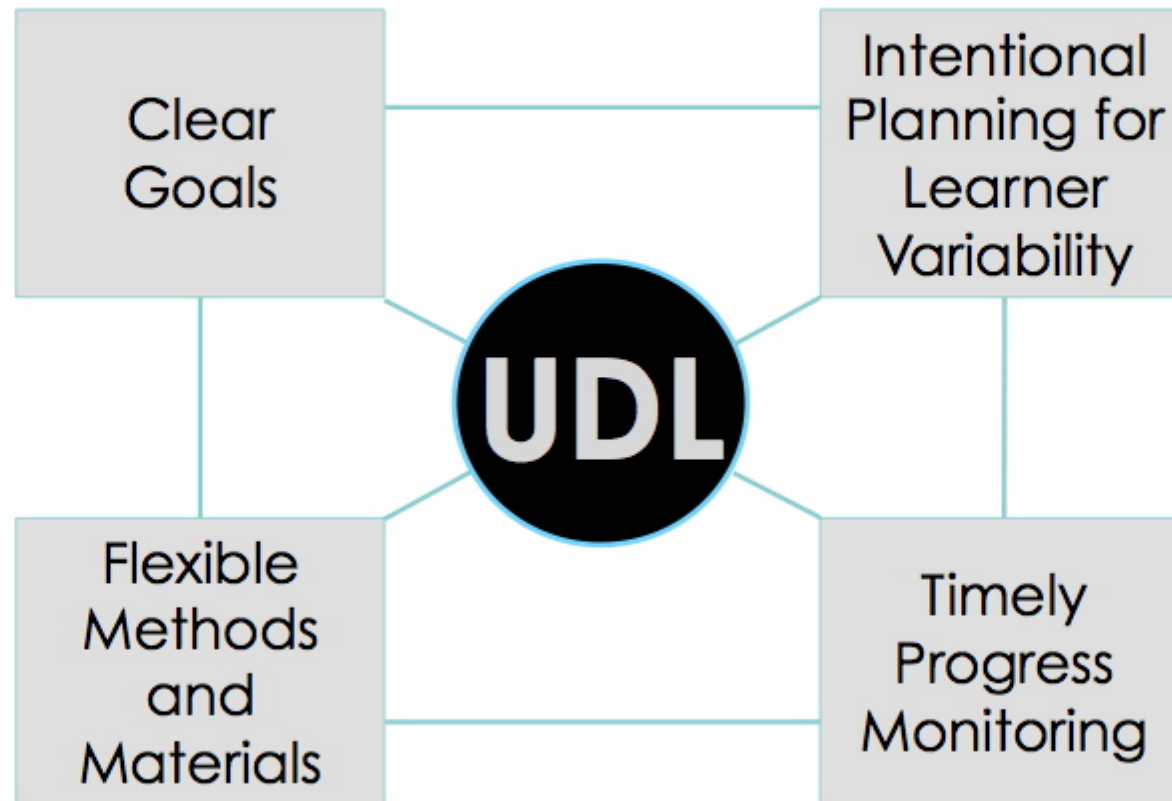
Technology is something invented **AFTER** you were born...



What types of “technology” are your students using?”



Critical Elements of UDL



Must be evidence that ALL four critical elements are present in order to be aligned with the framework of UDL

www.udl-irn.org

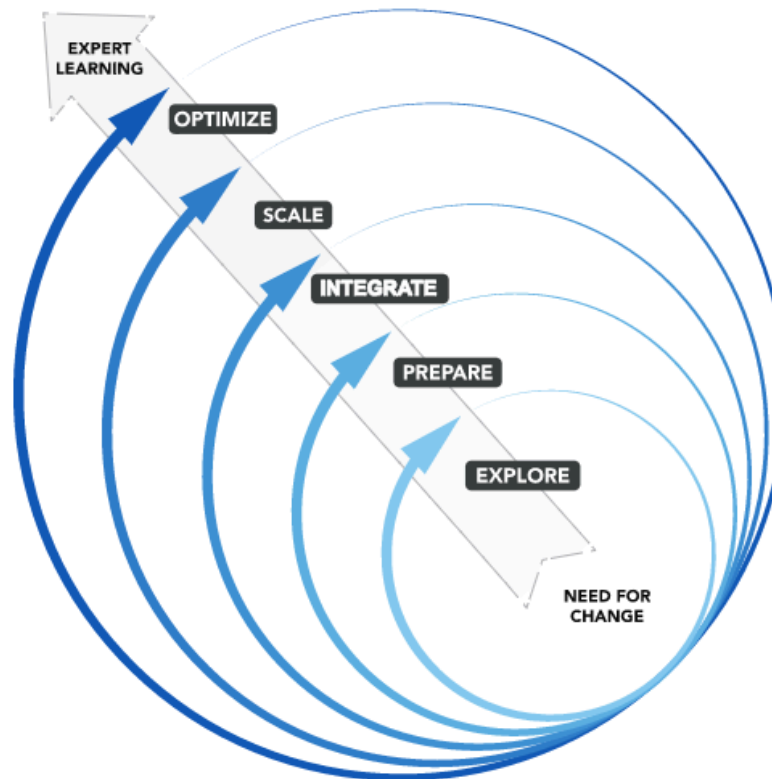
Clear Goals

- ✓ Teachers have a clear understanding of the goal(s) of the lesson and specific student outcomes
- ✓ Students understand and can express the expectations (goals) of the lesson.
- ✓ Permits multiple pathways to achieve the goal
- ✓ Goals are flexible – NOT embedding the means to achieving the goal unnecessarily thus allowing multiple paths to achievement.



UDL Implementation

UDL Implementation Process



<http://www.udlcenter.org/implementation>

William Spady: Our Systemic Educational Iceberg

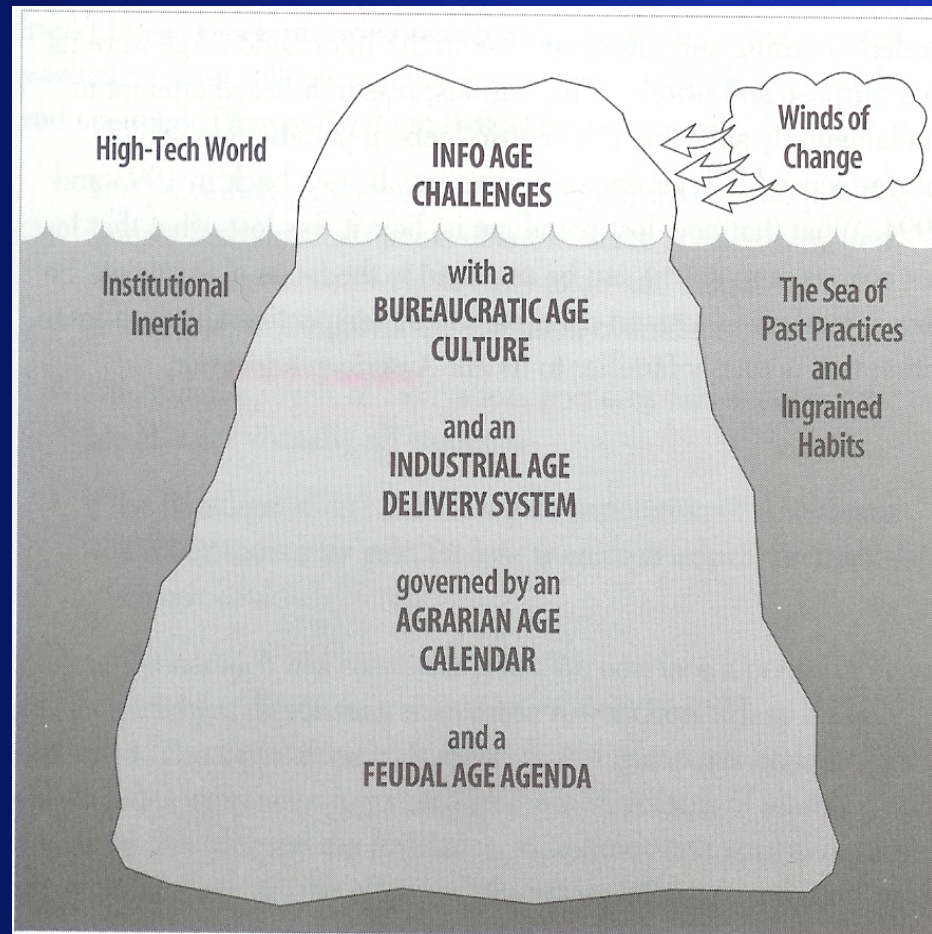


Figure 1.1

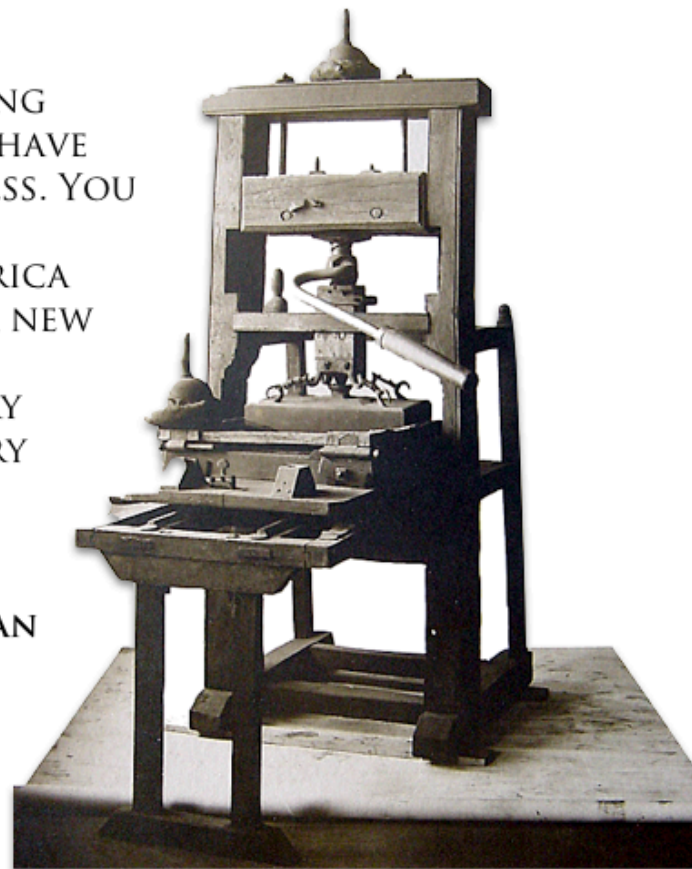
Our Systemic Educational Iceberg

"A NEW MEDIUM DOES NOT ADD
SOMETHING;

IT CHANGES EVERYTHING.

IN THE YEAR 1500, AFTER THE PRINTING
PRESS WAS INVENTED, YOU DID NOT HAVE
OLD EUROPE PLUS THE PRINTING PRESS. YOU
HAD A DIFFERENT EUROPE. AFTER
TELEVISION, AMERICA WAS NOT AMERICA
PLUS TELEVISION. TELEVISION GAVE A NEW
COLORATION TO EVERY POLITICAL
CAMPAIGN, TO EVERY HOME, TO EVERY
SCHOOL, TO EVERY CHURCH, TO EVERY
INDUSTRY, AND SO ON."

NEIL POSTMAN



Airplane analogy...

- Prepare for takeoff
 - “Please turn off ALL electronic devices and stow them beneath your seat in front of you or place them in the overhead bins...and remain in your seat.”



Our Current Education System



“Today’s education system faces irrelevance unless we bridge the gap between how students live and how they learn.”

– *Learning for the 21st Century, NCREL*

21st Century Learning: Promoting Creativity, Collaboration and Communication

Old Way: Presentation Driven

- Prepares students for jobs that require simply following directions and rote skills.

New Way: Collaborative

- Information is shared, discussed, refined with others and understood deeply.
- Prepares students to become part of a nimble workforce that makes decisions and keeps learning as the workplace changes.

What is an “expert”?

- Information (not knowledge) is at our fingertips
 - What do we do with it?
 - How do we manage all that information?
 - Can teachers still just be “deliverers” of information?
- “Sage on the Stage” vs. “Guide on the Side”
 - Need for transformative learning and teaching.
 - Do Teachers know their audience?
- Teachers won’t be obsolete...but our role needs to change with the times to create 21st Century learners.
- How are our “Tools” changing?

**“Tell me and I forget. Teach me and I
remember. Involve me and I learn.” –
Ben Franklin**



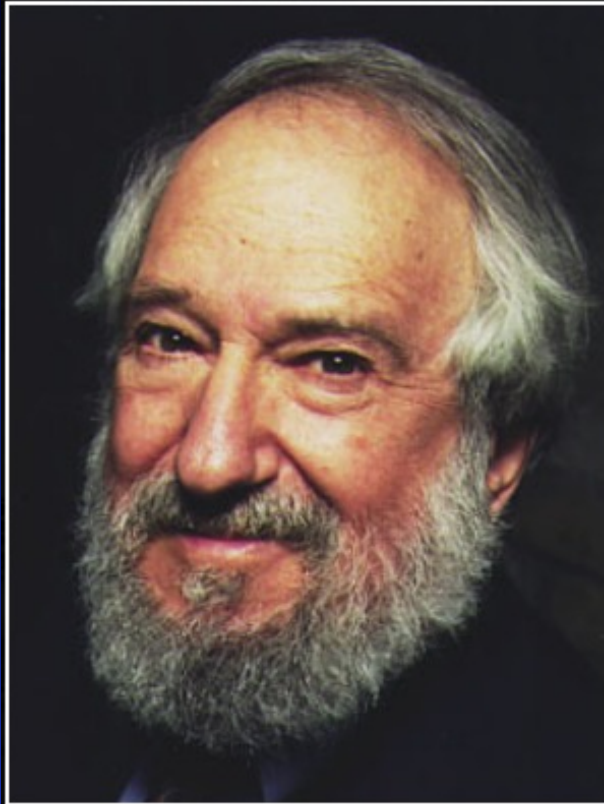
Is It Time to Give Up on Computers in Schools?

Audrey Watters on 29 Jun 2015

Audrey Watters:
<http://hackededucation.com/2015/06/29/is-it-time-to-give-up-on-computers/>

Next Steps

- Isn't it time we started preparing students for the 21st Century? It's already HERE!!!
- How do we create a sense of *crisis* and *outrage*?
 - 50-60% H.S. graduation rate in U.S. isn't enough?
- How do we facilitate change?
 - Be a change agent:
 - *Connect, Collaborate, Communicate*
 - *"Teach Different"*



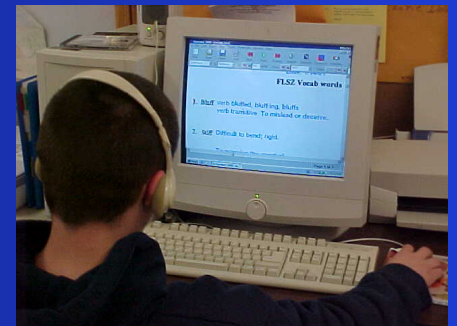
You can't teach people everything they need to know. The best you can do is position them where they can find what they need to know when they need to know it.

— *Seymour Papert* —

AZ QUOTES

“Ultimately, educational goals will not be about the mastery of content, but about the mastery of *learning*.”

Grace Meo



The Future of Education...

We are preparing students for their future, not our past.

Did You Know? 3.0



http://www.youtube.com/watch?v=YmwwrGV_aiE

Don't worry, it's still okay to appreciate a handwritten note...



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